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ARBORETUM BULLETIN
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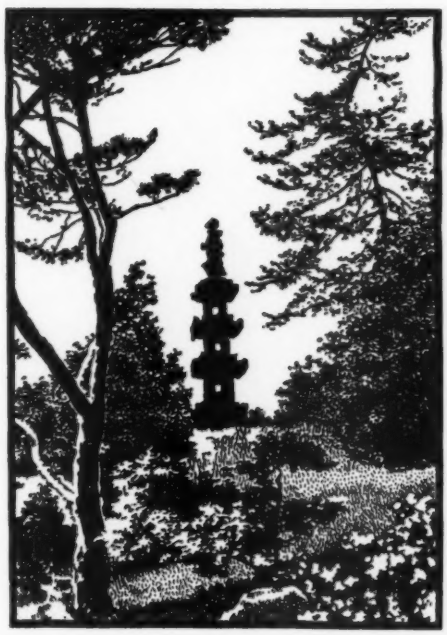
JANUARY, 1938



THE
MORRIS ARBORETUM
OF THE
UNIVERSITY OF PENNSYLVANIA

VOL. 2 No. 10

MORRIS ARBORETUM
CHESTNUT HILL
PHILADELPHIA, PA., U.S.A.

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THE
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Japanese Red Pine
Pinus densiflora
Sieb. and Zucc.
var. *umbraculifera* Mayr.

The pine that forms our frontispiece today is the Japanese Red Pine, *Pinus densiflora,* Sieb. & Zucc.

This tree has spreading branches, forming an irregular flattish top, and the branchlets have a striking yellowish-brown bark. The tree may reach a height of 100 feet, but it is cultivated in low-topped forms, of which that seen in the picture is one. It is the variety *umbraculifera* Mayr.

The leaves, growing in twos, have a bright green color and reach a length of from 2½ to 5 inches. The short-stalked cones are grayish-brown, conic-ovate to oblong in form, with short prickles on the scales toward the base of the cones. (Bailey.)

The pagoda shown on the front cover is from the Japanese Garden at the Arboretum.

The photographs were made by Gustave Liebscher.

RODNEY H. TRUE, *Director*

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NATIVE PLANTS FOR OUR GARDENS*

—BY—

DR. EDGAR T. WHERRY

THE MAJORITY of the plants which grow in small, informal gardens, and in particular, rock gardens, come to us from remote corners of the earth. There are, however, numerous native species to be found within a few hundred miles of our large eastern cities well worthy of the horticulturist's attention. Some of these are already in the trade, being offered by a few dealers who specialize in native plants. Others can be collected in the course of trips to places where man's activities have not yet destroyed the natural vegetation.

The mere fact that a plant is wild, and at first sight looks attractive, cannot be taken as an indication of its desirability for bringing it into a small-scale rock garden. There are certain species which spread so rapidly and so persistently by rootstocks, stolons, or other means, that they must be kept out at all costs.

Before attempting to transplant a native whose behavior is unknown, some observation should be made of the way it spreads, and if it forms vast colonies to the exclusion of other species, beware! Examples of what to avoid are: Bracken, hay-scented fern, lady-fern, chickweeds, buttercups, mustards, blackberries, some members of the evening primrose family, especially the rose-flowered *Oenothera* species, many milkweeds, dogbanes, morning-glories, mints and asters.

A list may now be given of native plants suitable for small rock gardens or wild gardens, which are relatively easy and safe to grow, not being particular as to soil or climatic conditions. (Slides of these were shown.)

Christmas Fern, and evergreen wood ferns, for holding shady slopes.

Cliff ferns (*Woodsia* sp.) and cliff brakes (*Pellaea* sp.)

Dwarf Spiderworts (*Tradescantia* sp.) from the Southern Appalachians.

Allium stellatum and other delicate native onions, but look out for *Allium cernuum*, which seeds too freely.

Many Trilliums, notably Snow Trillium (*T. nivale*) and Golden Trillium (*T. discolor*).

Iris cristata, a splendid dwarf species for dry rocks.

Rock portulaccas (*Talinum* sp.).

Catchflys (*Silene* sp.), including *S. pennsylvanica* and *S. virginica*.

Hepatica, especially *H. acutiloba* from the uplands.

Columbines, notably *Aquilegia canadensis*.

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*Abstract of lecture given at the Arboretum on Saturday, December 11, 1937, by Dr. Wherry, Associate Professor of Botany, University of Pennsylvania.

Dutchman's Breeches, such as the Ozark form of *Dicentra cucullaria* and the Appalachian *D. eximia.*

Stonecrops (*Sedum* sp.); *Sedum ternatum* for a ground cover for shady places, and *Sedum pulchellum* (annual) and *S. telephioides* for sunny rocks.

Foam Flowers, *Tiarella cordifolia* and *T. wherryi.*

Saxifraga virginensis, the little native Saxifrage.

Violets, such as Longspur Violet (*V. rostrata*) and Yellow Violets (*V. hastata* and *V. pubescens*), but avoid quick-growing ones.

Pachystima canbyi, a tiny evergreen ground cover.

Pachysandra procumbens, the native American Mountainspurge.

Cacti, such as the native *Opuntia calcicola, compressa* and *humifusa.*

Pepper-and-Salt (*Erigenia bulbosa*), a tiny member of the carrot family, blooming in the early part of spring. (Avoid most of this family.)

Bearberry (*Arctostaphylos uva-ursi*), a fine ground cover for dry rocks, one of the few members of the heath family that withstands limestone.

Shooting Stars (*Dodecatheon amethystinum, meadia,* and others).

Spring Polemonium (*Polemonium reptans*), very adaptable.

Blue-Eyed Mary (*Collinsia verna*), a winter annual.

Rock Petunias (*Ruellia ciliosa*), and others.

Harebell (*Campanula rotundifolia*).

Many of the above will grow in partial or even deep shade, furnishing an answer to the constantly-arising question: What shall we grow in a rather shady rock garden?

Success in cultivating any native species can be judged by the appearance around mature, adult plants, of young ones, resulting from dispersed seeds or from some structure producing increase in a vegetative manner. For, when the older plant dies, as it will when its normal lifespan has been attained, a new individual of the same species will be available to take its place.

Many species of native plants are decidedly sensitive to environmental conditions, and cannot be transplanted at random and be expected to thrive. For them it may be important whether the rock garden is shady or sunny, moist or dry, warm or cool in summer, acid or alkaline, and so on. Control of the two features listed first is relatively simple and needs no special discussion. The temperature of the soil in summer may, however, be a limiting factor in success with plants which come from much farther north, or from higher elevations, than the garden being developed. The soil can be kept cool to some extent by shading it from the direct rays of the sun, but a continuous supply of evaporating water is far more effective. This accounts for the success of the structure commonly known in rock-gardening as the "moraine," in which water is always maintained amid coarse rocks at some depth, and is brought to the surface by capillary action in the finer, overlying material. The plants growing here do not need the water as such, and indeed will often rot if it is allowed to

accumulate around their crowns, but the cooling produced by the evaporation of this water at the soil surface aids the growing process.

There are a number of native species, some of the greatest attractiveness and desirability, which prefer or require a fairly acid soil. When it is desired to grow them, a testing set should be obtained, and the soil tested with dyes which show color changes with different degrees of acidity or alkalinity. A rock garden for such plants must be built with sandstone, granite or other rocks which contain no rapidly soluble lime, and limestone rock must be excluded. Peat moss, rotten sawdust, oak leaves, etc., must be freely used to furnish acid humus. A selected list of these plants follows: (Slides shown.)

Appalachian Spleenworts, such as *Asplenium montanum.*

Rusty Cliff Fern, *Woodsia ilvensis.*

Rose Spiderwort, *Tradescantia rosea.*

American Lily-of-the-Valley, *Convallaria majuscula.*

Rosybells, *Streptopus roseus.*

Painted Trillium, *Trillium undulatum.* Must also be kept cool.

Violet Iris, *Iris verna,* a southern dwarf species.

Hexastylis species, the southern evergreen wild gingers.

Wineleaf Cinquefoil, *Potentilla tridentata.*

Dwarf Dogwood, *Cornus canadensis.* Keep soil cold in summer.

Trailing arbutus, *Epigaea repens,* and most of the other members of the heath family.

Sand Myrtles, *Leiophyllum buxifolium* and vars.

Dwarf Blueberries, such as *Vaccinium pennsylvanicum.*

Rock Cranberry, *Vaccinium vitis-idaea.* Keep soil cool.

Galax aphylla.

Shortia galacifolia.

Fairy Bluebell, *Campanula divaricata* or *flexuosa.*

Golden Aster, *Chrysopsis mariana.* (Avoid most composites.)

In concluding the lecture, a series of slides of the Phloxes, on which the speaker is doing research work, were shown. Besides *P. subulata,* widely used in rock gardens, the following were recommended, especially for more or less shaded areas:

Phlox bifida and *P. nivalis,* relatives of *P. subulata,* with fewer flowers, but with especially attractive colors and forms.

Phlox divaricata, both vars. *canadensis* and *laphami.*

Phlox pilosa, various color forms.

Phlox ovata, especially var. *pulchra.*

Phlox stolonifera, a splendid woodland ground cover, with various color forms from purple to violet and lavender.

BERRY-BEARING SHRUBS AND TREES

For those of us who are constantly in touch with the Morris Arboretum, the changes brought about, as one season gives way to another, afford a never-ending procession of beauty for our enjoyment. When we speak of the "beauties of nature," most of us immediately think of spring and summer, with their brilliantly colored flowers and their green foliage, but autumn brings us a beauty of its own. While it is true that the fall of the year is a season when most plants become dormant or die, the brightly tinted foliage and berries afford one last burst of color and gaiety before the long, dull winter comes.

During the past year, the berried shrubs and trees seemed more profuse and beautiful than for many years past. Possibly this is due to their rally from the severe winters of 1934 and 1935, that destroyed many of our trees and shrubs. Whatever the reason may be, both the fruits and flowers have outdone themselves in presenting a glorious show of color and beauty.

This fact alone has brought to our attention, more clearly than ever before, the value of shrubs and trees with brilliantly colored berries. The berries come when most of the flowers have gone. Hence, a few judiciously chosen and well-placed shrubs of the berried varieties will do wonders for a landscape that otherwise would become drab and uninteresting in early autumn.

In recent years, the amateur gardener, with the limited space surrounding his home, has learned the value of selecting appropriate flowers. The use of berried shrubs brings an additional resource for this type of landscape work.

At a recent meeting of the Germantown Horticultural Society, the Morris Arboretum presented a most interesting display of berried shrubs and trees. Later, the same display was shown at a meeting of the Botanical Society of Pennsylvania, where Mr. Edwin Matthews, of the Outdoor Arts Company, discussed the value of berried shrubs both from the decorative and the utilitarian points of view. The display consisted of 98 species and varieties, representing some eighteen genera. Herein were presented practically all the colors found in the spectrum, and it is easily seen how a brilliant display can be made from these types.

Among them the *Ilex* species were outstanding. *Ilex decidua,* in particular, put forth an abundance of bright, clustered berries, while *Ilex verticillata* presented the larger, less numerous fruits. The Japanese Holly, *Ilex serrata,* is a smaller and more slender plant than *Ilex verticillata.* It has small berries, and a dainty, delicate appearance. *Ilex pedunculosa* is one of the evergreen hollies. The plant has spineless, rounded leaves, and is noteworthy for its rapid growth, and for a greater hardiness

than that of other evergreen Japanese Hollies. Its berries are more sparse than those of other varieties, and grow singly on long, slender stalks. We must not forget our native holly, *Ilex opaca,* which is so much associated with the Christmas season. It fruited in great profusion this past year. In growing this variety, it is necessary in order to have berries to plant two sexes, male and female, since this holly is dioecious.

The newer *Aronia arbutifolia brilliantissima* showed great improvement over the ordinary type in its brilliance of color and heaviness of fruit. *Nandina domestica,* commonly known as the "Heavenly bamboo," gains its name from the bamboo-like foliage beneath its scarlet fruits. The leaves, after the first frosts, assume a lovely red-bronze color that remains throughout a great part of the winter.

Pyracantha coccinea Lalandii (Fire Thorn), with which we are so familiar, displayed its fiery color to the utmost, and the many varieties of Barberry were exceptionally well-fruited.

There was, as well, the huge, heavily-fruited *Lonicera Maackii podocarpa,* forming a striking background for the display. Among the low-growing Loniceras, we have *Lonicera pileata,* a dwarf evergreen honeysuckle, with berries of purple-violet or amethyst. This is particularly useful and attractive when used in rockeries, or as an edging for a shrubbery border. *Lonicera nitida* is closely related to *Lonicera pileata,* but is a more upright shrub. The leaves turn a beautiful bronze color in the autumn, adding to the attractiveness of the shrub for rockeries. *Lonicera Henryi* is a half-evergreen honeysuckle, with fairly large black fruit. It grows either twining or prostrate, and is recommended in place of the common Japanese honeysuckle which, through its extremely rapid spread, often becomes a nuisance. *Lonicera Heckrottii,* though not grown for its fruits, is noteworthy for its beauty of flower, and for the fact that it continues to bloom from early summer until the first frost. *Leycesteria formosa* (Himalayan honeysuckle) is new to us. It killed back here, but in the following year it flowered and fruited nicely. It is an odd little shrub with its tubular, reddish-purple berries and, we are sure, will stand a great deal of experimentation on its uses.

Malus zumi, characterized by its beautiful red fruit and by its tall, handsome form, and *Malus Sieboldii* (Toringo Crab), which has red fruit, sometimes approaching yellow, were included, together with *Viburnum dilatatum* and *Viburnum theiferum,* which are always good.

Among the darkly-berried shrubs was *Ligustrum vulgare buxifolium,* with its lustrous black fruits and dark-green foliage, the latter being retained for the greater part of the year. *Ligustrum sinense Stauntoni* has berries with a more bluish tinge,

which grow in numerous clusters. This is a most graceful privet, excellent for use where a larger growing type than Regel's is desired, and it has proved hardy here at the Arboretum. In our display was included *Ligustrum acuminatum macrocarpum,* also covered with bluish-black berries, having the largest berries of all the privets.

One black-fruited shrub at the Arboretum, *Rhamnus crenata,* is most outstanding, because its fruits persist throughout the winter. Another plant of great value, a tree which we are proud to own, and which has this same characteristic, is *Phellodendron Lavallei. Phellodendron japonicum* is especially attractive to the birds, hence it is of great interest to those of us who desire to encourage birds to flock around our homes.

Again, for those who prefer the lilac and violet shades, there is the willowy *Callicarpa dichotoma (C. purpurea)* with its profusion of berries. However, this shrub is often injured by the first frost and early loses its beauty. *Callicarpa Giraldiana,* also with violet fruits, is similar to *Callicarpa dichotoma,* but grows to a greater height.

In *Euonymus Bungeana* we find a most striking contrast between the brilliant scarlet of its fruits, and the pale, delicate pink of its capsule. This is a particularly unusual combination, especially noteworthy since it is so seldom found in Nature.

In addition to the commonly grown Snowberry, we have *Symphoricarpus oreophilus* (Mountain Snowberry), a graceful shrub with slender, spreading branches, and smaller, almost snow-white berries. A variety of Indian Currant, represented here by plants received from the New York Botanical Garden as *Symphoricarpus orbiculatus elongatus,* has larger berries and a more graceful habit of growth than that of any other type we have previously seen. Another distinct variety is *Symphoricarpus orbiculatus leucocarpus,* particularly interesting because of its yellowish-green berries and its longer, more graceful branches. *Symphoricarpus Chenaultii* is one of the newer hybrids. Its leaves are daintier, and its entire appearance is one of greater neatness and delicacy than that of its near relatives. The berries are pinkish-red, and are covered with small pale dots, adding an unusual touch to the shrub.

The Cotoneasters were represented by *Cotoneaster divaricata,* an upright shrub of medium height, with slender branches graced with small, lustrous leaves and a profusion of bright red fruits. Contrasted with this was *Cotoneaster acutifolia villosula,* a graceful, strong-growing variety, with large leaves and conspicuous black fruits. *Cotoneaster Dielsiana* is handsome indeed, and particularly good when grown on a single stem, for then the slender, pendulous branches are seen to the best advantage. Representing the medium growth, we have *Cotoneaster Zabeli,* another

handsome shrub characterized by red fruit. Let us not forget, either, the little, low-growing *Cotoneaster horizontalis,* with its peculiar branching effect. This is excellent in rockeries because of the brightness of its berries and the tenacity with which it holds them, as well as the leaves.

Cotoneaster salicifolia floccosa has been found growing profusely in the garden of Mrs. Chauncey H. Peacock, at 20 West Waterman Avenue, Chestnut Hill. This is by far the most outstanding Cotoneaster we have seen in this locality. Even after Christmas, the shrubs were still laden with berries, and made a beautiful entrance for the home. Having seen this excellent display of them, we are led to hope that this shrub will in the future be more widely grown in and around Philadelphia, as well as in other localities where conditions are favorable.

The plants of which we have spoken, together with many others, composed our collection of specimens. In presenting this exhibition, we were mindful of its educational as well as esthetic value. To this end, the collection of cut specimens exhibited at these meetings was distributed to school teachers and garden clubs, in order that a larger number of people might study them in detail, and therefore come to a greater appreciation of the shrubs as seen in the growing state.

We wish to express our thanks to our friends of Princeton University, and of the Scott Foundation of Swarthmore College, for their contributions of several specimens, with which we completed our collection.

JOHN TONKIN

RAISING FERNS FROM SPORES

THERE ARE several methods by which ferns may be propagated, each being dependent upon the type of plant and material available. By far the most common method used in present-day practice is the sowing of spores. This gives the greatest number of plants, requires less space than other methods, and is comparable to seed-sowing of flowering plants.

There are types of ferns that exhibit various characteristics developed by nature for the purpose of vegetative propagation. With the exception of the old type Boston fern *(Nephrolepis exaltata bostoniensis),* the genus *Nephrolepis,* particularly the varietal forms, do not produce spores, but instead develop runners, which give rise to new plants. The walking fern is a similar illustration of vegetative reproduc-

tion. *Asplenium bulbiferum* is a type which demonstrates the multiplication of plants by vegetative growths in the form of bulbils, which are reproduced in abundance on the fronds. The water fern, or *Ceratopteris,* is a type producing marginal vegetative buds that develop rapidly and become detached from the leaf and form independent plants. This type of reproduction is also exhibited in the flowering plant, *Bryophyllum,* or sprouting leaf. The long rhizomes of the Formosa type of fern *(Davallia),* when cut into sections, form one of the easiest and quickest means of obtaining mature plants. Even when spores are available, it is often advisable to increase one's stock by the "division" method. Plants such as the Boston and maidenhair ferns, having a compact growth of many crowns, can easily be separated, so that one, or several crowns, become a separate plant.

The practice of successfully raising ferns from spores depends upon careful preparation of all materials. The preparation of the growing medium is a very important one. It is important that the soils should be composed of materials supplying a light, fine and water-retentive medium, free from all foreign organisms destructive to young fern growth. Many types of soils are used for germinating spores according to one's preference gained from experience. The soils should consist of loam, humus and sand. These may be made up of two, two, one; that is, loam two parts, humus two parts, sand one part, or, a mixture of one part of each. A combination that has proved very successful is three parts loam, two parts humus and one part sand. Commercial growers, for economic reasons, substitute peat moss for humus.

After the soil has been thoroughly mixed and screened to remove all pieces of wood and heavy solids, the next step in the preparation of the soil is sterilization to insure against contamination by fungoid diseases, and other injurious organisms that cause serious losses after germination has taken place.

The natural enemies of *prothallia* are fungi, algae, liverworts and moss protonema. Strong growing species of *Cyrtomium, Dryopteris* and *Adiantum* forms often smother and eventually kill weaker growing species. Recently, Michigan Soil Sponge Peat has been successfully used in growing fern *prothallia.* The advantage in using this material is that sterilization is unnecessary. It has no injurious foreign substance, retains moisture, does not pack, while acidity and food values contained therein appear to be well suited to the young developing fern plant. This material is benefited by an additional 10 per cent. of sand to increase porosity.

The receptacles for use in germinating spores may be pots, pans, flat boxes, or open greenhouse benches or frames. When pots or pans are used, the soil is placed in the receptacle, pressed moderately firm, and the surface leveled, then the soil is watered thoroughly with a fine spray, or, pots in saucers filled with water soak

the soil from below. The top of the pot should then be covered with glass to insure against contamination of any kind.

To insure germination, it is essential to select spores that are ripe. These may be identified by the rich brown coloring of the indusium or spore covering. Those having naked sporangia (no indusia), as in the *Polypodiums,* can be tested for maturity by gently brushing the spores with the finger. If the light golden spores adhere readily to the skin, they are ready for sowing. Should there be any doubt as to the degree of ripeness, it is a safe practice to cut the fronds, place them in a paper bag for a period of time to permit the shedding of some spores. When sowing spores in pots or pans, it is a good practice to waterlog the soil. Then, as the water recedes, the spores are evenly deposited on the soil surface. This prevents crowding or bunching of the young ferns. Spores must never be covered, but must remain on the surface of the soil to insure proper germinating conditions.

To obtain a pure culture of a given species, care must be exercised to prevent sowings from other species from becoming mixed. To safeguard against this, cover with glass immediately after sowing and place in a shady position. The glass covering should have a half-inch overlap to insure exclusion of other organisms. Each day these glasses should be turned over quickly, so that the under surface of the glass that holds the condensation is removed from the inside of the pot and injury from drip is eliminated. When large quantities are sown on an open greenhouse bench, a covering or "framing in" with cheesecloth is ideal. This should be kept far enough from the surface of the soil to allow free circulation of air. Cheesecloth acts as a shade, helps to retain moisture, and acts as a barrier against contamination. Subsequent waterings should be from below when possible. When overhead watering is necessary in large cultures, a fine spray that will prevent washing or disturbing spores or soil should be used.

When raising ferns from spores, it is important to know beforehand the necessary essentials required during the early stages of fern development. When a spore germinates, it does not develop immediately into a fern plant, as a seed develops into a flowering plant, but a spore develops a small, flattened, green heart-shaped structure known as a *prothallus,* which in turn develops sex cells in the *archegonia* (female) and *antheridia* (male). After fertilization has been effected, a rudimentary fern leaf appears, and as growth progresses, fronds characteristic of the species are developed, forming the true fern plant. When the plants have attained enough size for handling, they should be transplanted into the receptacles, allowing sufficient space for the proper development of the individual plant. The growing medium now becomes varied, according to the requirements of the species, varying from a light to a heavy combination. By adding or omitting humus from the combination, a

soil suitable to the requirements of different types of ferns can be supplied. As an illustration, the Boston fern prefers a heavy soil, the maidenhair *(Adiantum)*, a lighter, porous soil, while the *Davallia* (Formosa Fern) requires Osmunda fern fibre or orchid peat. Humus lightens the soil, retains the moisture, and supplies the woodland organisms so beneficial to fern growth. The soil supplies the major food requirements and is the basis of all soil combinations. The amount of sand added is to insure the proper porosity of the soil, especially when combined with good drainage supplied at the base of the receptacle. When the plants have attained a size suitable for two-inch pot culture, they should be potted and grown on for repotting into larger sizes, as required, to bring the plant to maturity, or to a stage sufficiently large enough for outdoor planting.

Fern spores can readily be seen on the under surface of the leaves in the form of dots, stripes, chains, masses, or groups, ranging in color from white to golden or dark brown, according to the age or maturity of the sporangium or spore case.

The question is often asked how ferns can be rid of scale and other insect pests, which are so persistent on the under surface of fern fronds. The answer to this question is that these round, dark-brown masses are not scale or any form of insect life, but instead are the natural production of spores, which should never be removed unless needed for sowing. The spores may be spread over the entire under surface of the leaf, or arranged in definite single rows, in pairs, or solid bars on leaf margins or leaf tips, in some cases on entire fronds. Rarely spores are produced on the upper surface of the leaf of the Heart's Tongue Fern or *Phyllitis Scolopendrium*.

Ferns are classified according to the arrangement of the spores on the leaf. Occasionally, hybridization takes place in the prothallium stage when allied species are growing together. Artificial fertilization by hand, as practiced in flowering plants, is impossible with ferns.

For the purpose of increasing the number of species in our collection, and in doing so to increase the beauty and scientific value of the unique Fern House, The Arboretum has secured fern spores from many botanic gardens throughout the world. Many ferns from these sources are now growing in the Arboretum greenhouses, and of outstanding interest at the present time is a series showing the most interesting stages of development of the finest of all—the Stag's Horn Fern, *Platycerium grande*. That we do derive new species from these foreign sources demonstrates clearly that the vitality of fern spores is retained over a long period and under adverse conditions.

JAMES LAMBERT

ACKNOWLEDGMENTS

During the six-months' period now closing, the Arboretum gratefully acknowledges the receipt of plants, seeds and cuttings listed as follows:

Ambler Nurseries, Ambler, Pa.
8 Species and Varieties, 16 Plants

Boyce Thompson Arboretum, Yonkers, N. Y.
18 Species and Varieties, 33 Plants

Cornell School of Ornamental Horticulture
35 Species and Varieties of Plants and Cuttings

John Gill, Haddonfield, N. J.
Clethra alnifolia, 1 Species, 2 Plants

Mrs. Arthur R. Iliff, Old Ambler Homestead, Ambler, Penna.
1 Large Crassula

Koster & Company, Bridgeton, N. J.
19 Species and Varieties, 40 Plants

Masonic Homes, Elizabethtown, Pa.
37 Species and Varieties, 124 Plants

Park Valley Nurseries, Prospectville, Pa.
3 Species and Varieties, 3 Plants

Westtown Friends' School, Westtown, Pa.
3 Species and Varieties, 18 Plants

Joseph J. White, Inc., Whitesbog, N. J.
1 Species, 1 Plant

Collected by members of the Arboretum staff on the premises of a member of the staff at Bell Station, Prince George's Co., Md.
15 Species and Varieties, 78 Plants

Collection by members of the staff.
15 Species and Varieties, 88 Plants

Seeds were received from the following sources:

Ambler Nurseries, Ambler, Penna.
Berberis Jamesonii and *Stewartia camellia*

Arnold Arboretum, Boston, Mass.
Quercus ellipsoidalis from Illinois

Barnes Foundation, Merion, Penna.
Hovenia dulcis

Samuel N. Baxter, Germantown, Phila., Pa.
Seeds of *Pterocarya stenoptera* from a Germantown tree, and *Taxodium mucronatum* from the largest tree in the world in Mexico

Botanical Garden of Basel, Switzerland
7 Packets

Botanical Garden, Berlin, Germany
45 Packets

Botanical Garden, Koeln, Germany
14 Packets

Botanical Garden of LaMortola Ventimiglia, Italy
17 Packets

Botanical Garden, Leyden, Holland
15 Packets

Botanical Garden of the University of Nancy, Nancy, France
1 Packet

C. C. Deam, Bluffton, Indiana
A very unusual variety of *Carya ovalis*

Dominion Experimental Farm, Ottawa, Canada
64 Packets

J. Dornan, Chestnut Hill, Philadelphia, Pa.
Ilex vomitoria and *Melia Azederach* collected in North Carolina

John K. Edwards, University of Pennsylvania
Asimina triloba, collected in Indiana

Marsh Botanical Garden of Yale University, New Haven, Conn.
7 Packets

Oliver M. Neal, Jr., North Berwick, Maine
18 Packets collected from native Maine plants

New York Botanical Garden, Bronx Park, New York
13 Packets

Northern Rocky Mountains Experiment Station, through the courtesy of the Scott Foundation, Swarthmore, Pa.
Pinus ponderosa

E. E. Wildman, Philadelphia
Cedrus libanotica, collected at the home of Mrs. Morris Dean, West Chester, Pa.

The Arboretum was generously supplied with Triogen during the rose season of 1937 by Mr. Edwin M. Rosenbluth, of Wallingford, Penna. Excellent results followed the use of Triogen.

CHANGES *in the* DEPARTMENT *of* BOTANY *at the* UNIVERSITY

On June 30th, Rodney H. True, who had been head of the Department of Botany at the University of Pennsylvania since 1920, was retired on account of age, and Dr. Jacob R. Schramm, Editor-in-Chief of BIOLOGICAL ABSTRACTS, was appointed to succeed him at the University. Dr. True remains as Director of the Morris Arboretum, with his headquarters at Chestnut Hill.

Dr. Schramm graduated at Wabash College in 1910, took his Ph.D. degree at Washington University, St. Louis, in 1913. After acting as Instructor in the Shaw School of Botany of that University, he became Assistant Professor, and then Professor of Botany, at Cornell University.

Among his many activities, he has served on the National Research Council as Executive Secretary of the Division of Biology and Agriculture. He has been Secretary, Vice-President and President of the American Botanical Society, and is a member of the American Philosophical and of other scientific societies.

DUTCH ELM DISEASE ERADICATION

THE PLANT DISEASE REPORTER, issued by the Division of Mycology and Disease Survey, Bureau of Plant Industry, U. S. Department of Agriculture, on September 1, 1937, reports for the weeks ending August 14th and August 21st the findings regarding 704 trees having the disease, confirmed by laboratory tests. Of this number 10 were in Connecticut, 514 in New Jersey, 177 in New York, and 3 in Indianapolis, Indiana.

That progress is being made in the battle with this disease is shown by the following confirmed occurrences:

LOCATION	1933	1934	1935	1936	1937
New Jersey	740	4,377	4,113	5,793	3,473
New York	77	2,427	2,258	1,741	982
Connecticut	1	56	76	102	91
Indianapolis	0	4	10	19	30
Totals	818	6,864	6,457	7,655	4,576

No cases were found in the following places, in which it had been found at earlier dates:

Cincinnati, Ohio
Athens, Ohio
Baltimore, Maryland
Brunswick, Maryland
Cumberland, Maryland
Norfolk, Virginia
Wiley's Ford, West Va.

R. H. T.

WINTER LECTURES

THE LECTURE COURSE at the Morris Arboretum for the coming winter season will deal with plants in various types of ornamental groupings. The speakers are well-known authorities in their several lines. As heretofore, summaries of the lectures will be printed in the Bulletin. The program follows:

January 8, 1938

MR. A. F. W. VICK — *Wild Gardens*

Mr. Vick has been actively developing this special phase of Botany for some time, and his work has been seen at the Philadelphia Flower Shows.

February 12, 1938

MRS. HOLLIS WEBSTER — *Herb Gardens*

Mrs. Hollis Webster, of Lexington, Massachusetts, will speak on Herb Gardens, a matter on which she has frequently lectured.

March 12, 1938

MR. CHARLES L. TRICKER — *Water Gardens*

Mr. Charles L. Tricker, of Saddle River, New Jersey, will speak on Water Gardens, a subject with which the name of Tricker has long been associated.

April 9, 1938

MR. ROBERT S. STURTEVANT — *Beds and Borders*

Mr. Robert S. Sturtevant, of Groton, Massachusetts, a well-known landscape architect, will speak on Beds and Borders, covering perhaps the more usual types of planned ornamental groupings.

The lectures will be given in the auditorium of the Morris Arboretum, at Chestnut Hill, on the second Saturday of each month, at 2:30 o'clock. All will be illustrated in one way or another. Admission is free, and cars may be parked opposite the entrance on Meadowbrook Lane.